

FINC-460: INVESTMENTS

FINC-970: EMPIRICAL METHODS IN FINANCE

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NORTHWESTERN UNIVERSITY

PLAN

- Instead of reviewing the syllabus (which you can read by yourself), I want to tell you why my class is **VERY IMPORTANT, TREMENDOUSLY INTERESTING, AND HIGHLY CHALLENGING**.
- These slides are meant to make you **EXCITED ABOUT FINANCE**.
- I will show you **SCIENTIFIC EVIDENCES** that there are ways to **“BEAT THE MARKET”** if you learn how to think about various dimensions of systematic risk.
- It is a thrilling trailer of **“FINANCE BEYOND FIN-I AND FIN-II”**.
- These skills have potentially high demand in the job market.
- Lets Get Started. **DO NOT HESITATE TO ASK QUESTION ANYTIME!**

Why Take FINC 460: ‘INVESTMENTS’?

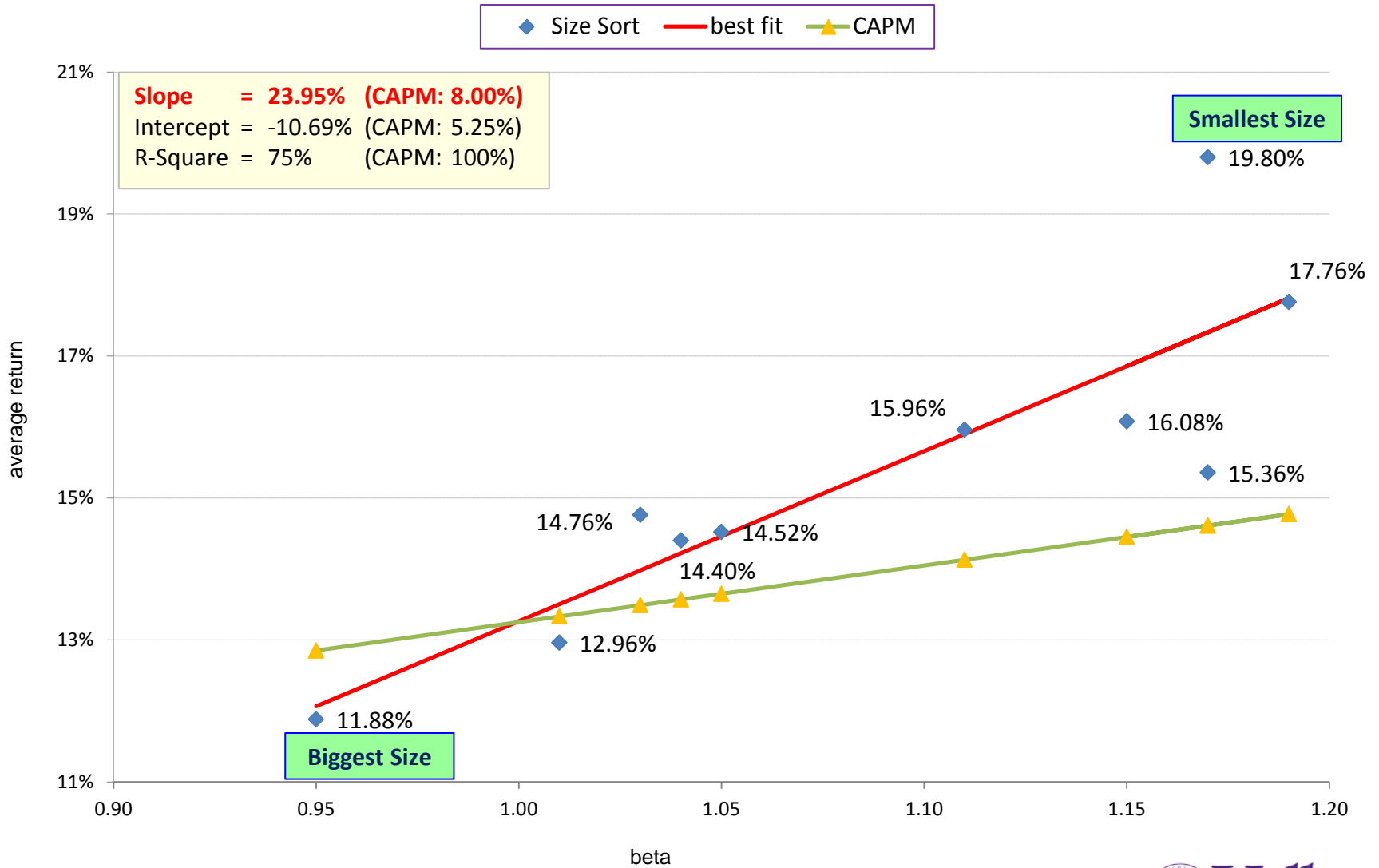
- **The “OLD FINANCE”**: The story you heard in FIN-I and FIN-II:
 - “**MARKET PORTFOLIO**” is the **ONLY SOURCE OF SYSTEMATIC RISK**.
 - It is **IMPOSSIBLE TO “BEAT THE MARKET PORTFOLIO”** when assets are correctly priced in a frictionless marketplace.
 - This is the story of the CAPM.
- Based on CAPM, the Most Sensible Investment Advice is:
 - Hold only the market portfolio as risky side of investment.
 - You will receive highest average return per unit of volatility.
 - This was the classic Passive Index Investment advice.
- **The “NEW FINANCE”**: **THERE ARE STRATEGIES TO BEAT THE MARKET. DATA SHOWS THAT THE CAPM IS A EMPIRICAL FAILURE – WRONG MODEL OF THE REAL MARKETPLACE!**

The “SIZE” Effect

Size Sort (grouped by market capitalization and held for 1 month)			
Empirical Observation (NYSE + AMEX, Value Weighted Portfolio, 4/1951-12/1989)			CAPM Prediction (Rf = 5.25%, mkt rp = 8.00%)
Market Cap Ranked Portfolio (by decile)	Average Return (annual)	beta	Average Return (annual)
Smallest Size	19.80%	1.17	14.61%
2	17.76%	1.19	14.77%
3	16.08%	1.15	14.45%
4	15.36%	1.17	14.61%
5	15.96%	1.11	14.13%
6	14.52%	1.05	13.65%
7	14.40%	1.04	13.57%
8	14.76%	1.03	13.49%
9	12.96%	1.01	13.33%
Biggest Size	11.88%	0.95	12.85%

Ref: Hawawini and Keim, 1995, Handbook OR & MS, "On the Predictability of Common Stock Returns: World-Wide Evidence"

The "SIZE" Effect

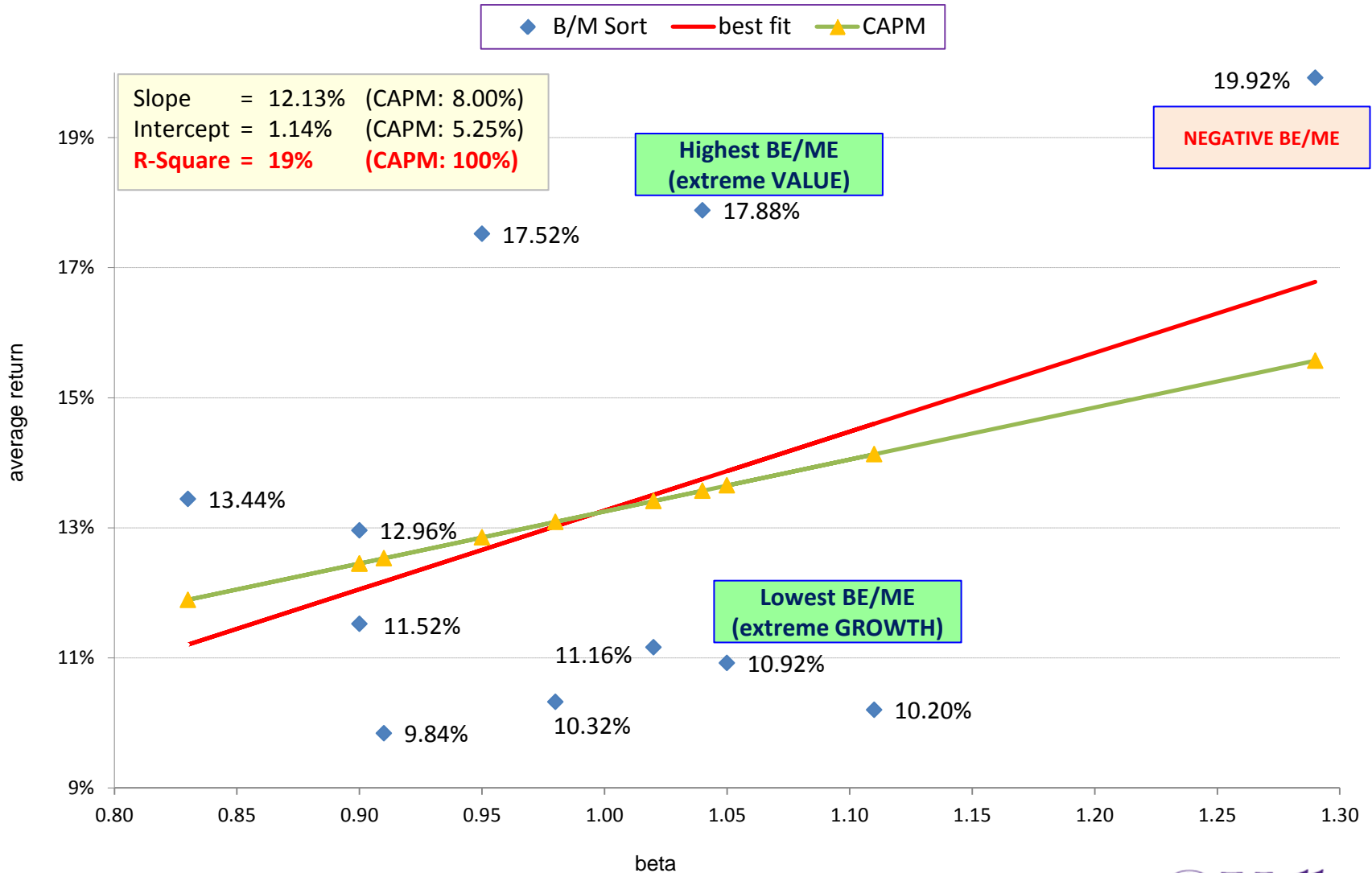


The “VALUE” Effect

Value Sort (grouped by book-to-market equity ratio and held for 1 month)			
Empirical Observation (NYSE + AMEX, Value Weighted Portfolio, 4/1962-12/1989)			CAPM Prediction (Rf = 5.25%, mkt rp = 8.00%)
BE/ME Ranked Portfolio (by decile)	Average Return (annual)	beta	Average Return (annual)
Highest BE/ME (max Value)	17.88%	1.04	13.57%
2	17.52%	0.95	12.85%
3	12.96%	0.90	12.45%
4	13.44%	0.83	11.89%
5	11.52%	0.90	12.45%
6	9.84%	0.91	12.53%
7	10.32%	0.98	13.09%
8	11.16%	1.02	13.41%
9	10.20%	1.11	14.13%
Lowest BE/ME (max Growth)	10.92%	1.05	13.65%
NEGATIVE	19.92%	1.29	15.57%

Ref: Hawawini and Keim, 1995, Handbook OR & MS, "On the Predictability of Common Stock Returns: World-Wide Evidence"

The "VALUE" Effect



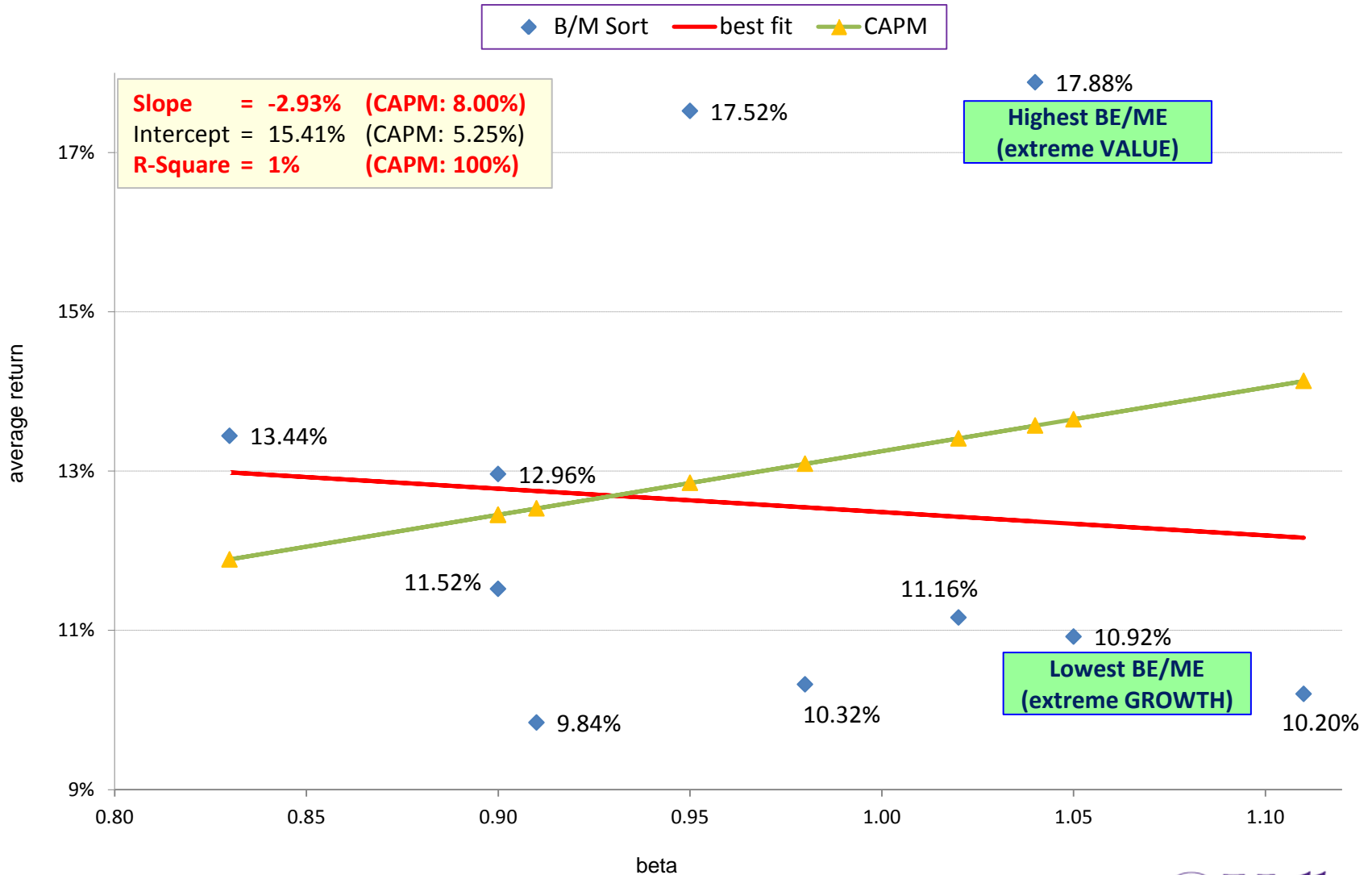
The “VALUE” Effect w/o Negative BE/ME

Value Sort (Exclude Negative Book Value Firms)
(grouped by book-to-market equity ratio and held for 1 month)

Empirical Observation (NYSE + AMEX ex negative BE, Value Weighted Portfolio, 4/1962-12/1989)			CAPM Prediction (Rf = 5.25%, mkt rp = 8.00%)
BE/ME Ranked Portfolio (by decile)	Average Return (annual)	beta	Average Return (annual)
Highest BE/ME (max Value)	17.88%	1.04	13.57%
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The “VALUE” Effect w/o Negative BE/ME

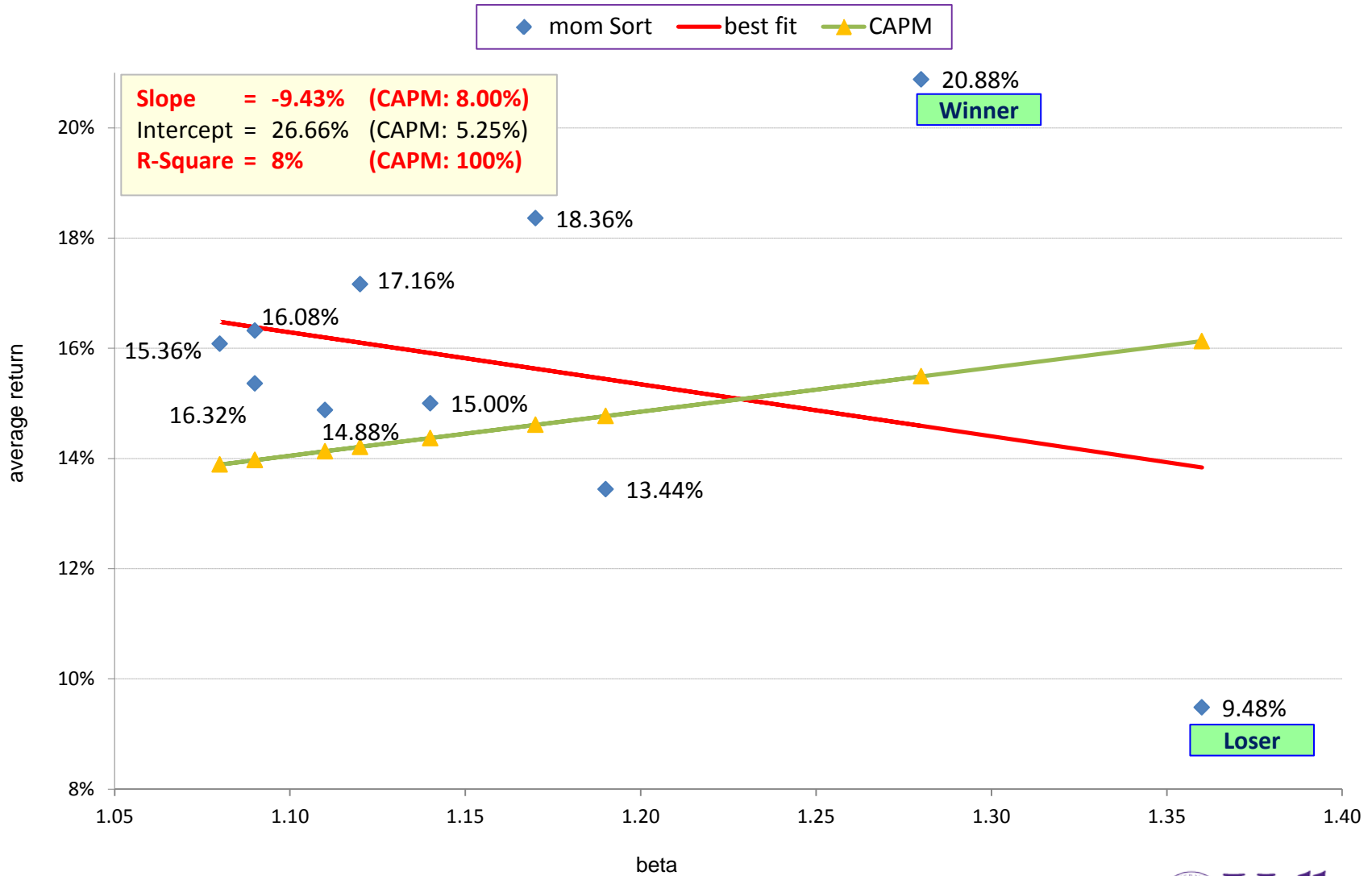


The “MOMENTUM” Effect

Momentum Sort (grouped by 6-months past return and held for 6-months)				
Empirical Observation (NYSE + AMEX, Equal Weighted Portfolio, 1/1965-12/1989)			CAPM Prediction (Rf = 5.25%, mkt rp = 8.00%)	
Momentum Ranked Portfolio (by decile)	Average Return (annual)	beta	Average Return (annual)	
1 (min momentum, Loser)	9.48%	1.36	16.13%	
2	13.44%	1.19	14.77%	
3	15.00%	1.14	14.37%	
4	14.88%	1.11	14.13%	
5	15.36%	1.09	13.97%	
6	16.08%	1.08	13.89%	
7	16.32%	1.09	13.97%	
8	17.16%	1.12	14.21%	
9	18.36%	1.17	14.61%	
10 (max momentum, Winner)	20.88%	1.28	15.49%	

Ref: Jagadeesh and Titman, 1993, J of Finance, "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency"

The “MOMENTUM” Effect

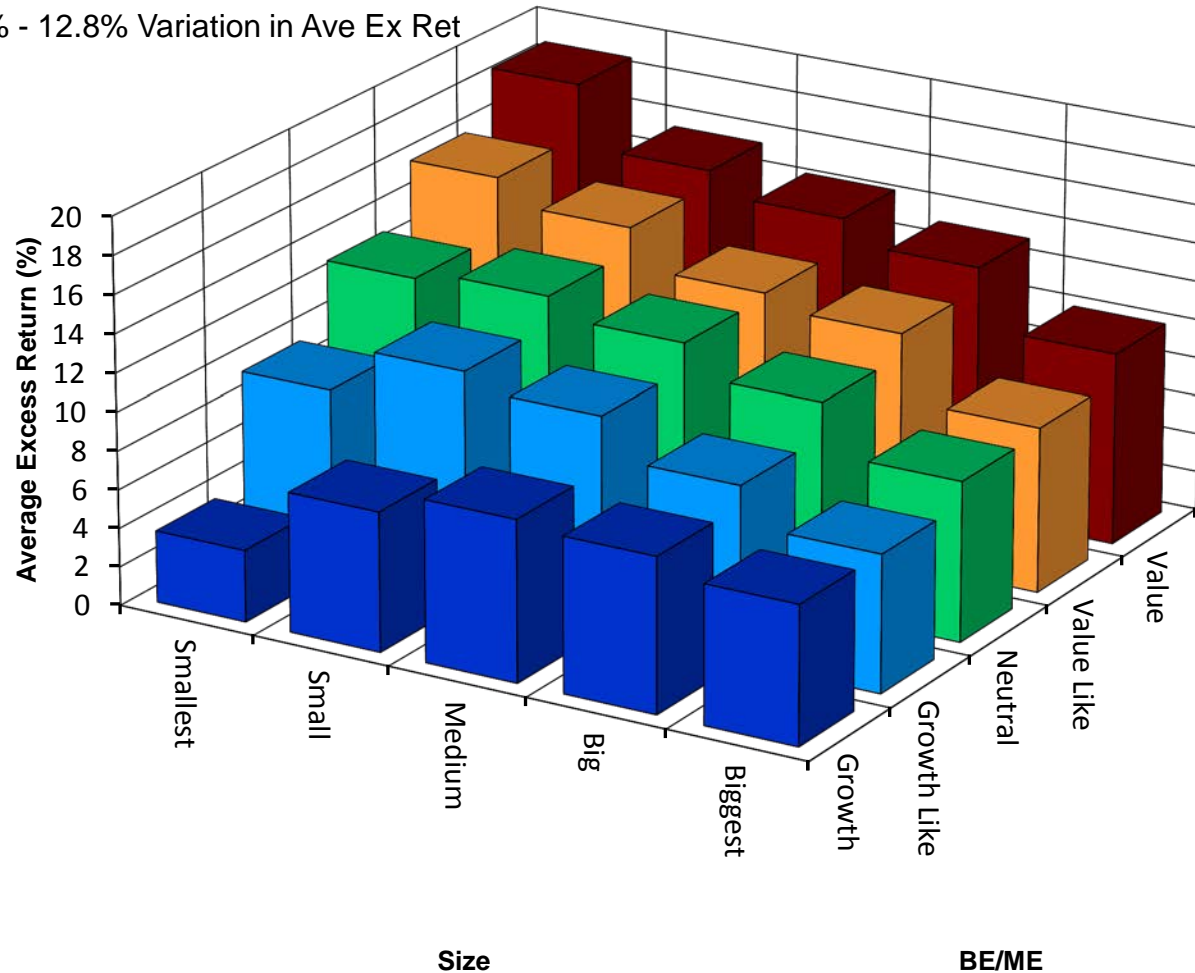


Fama-French (5 × 5) Test Portfolios

Tremendous Variation in Average Excess Returns: 2% - 18%

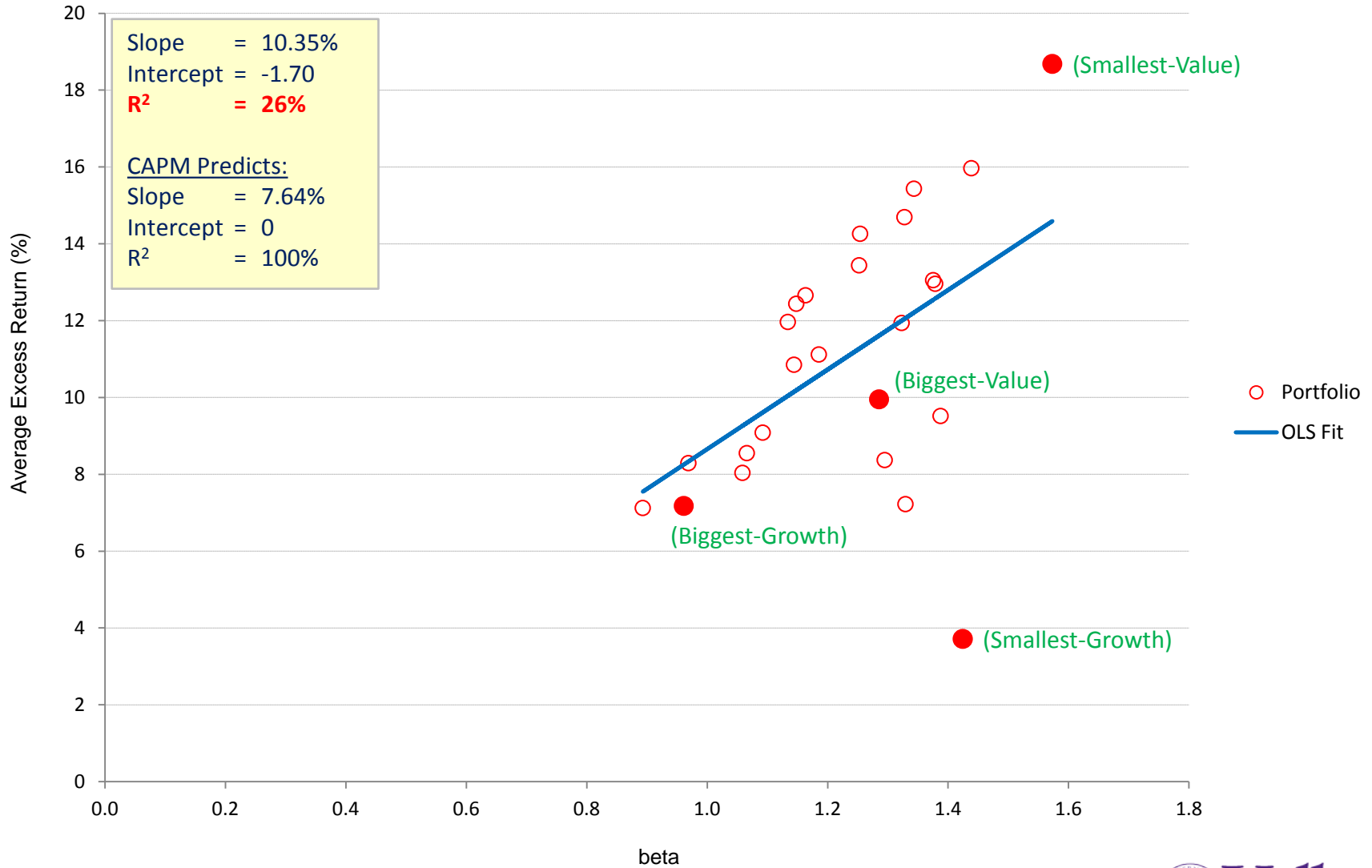
Small Variation in CAPM Beta: 0.9 - 1.6

CAPM → 7.2% - 12.8% Variation in Ave Ex Ret

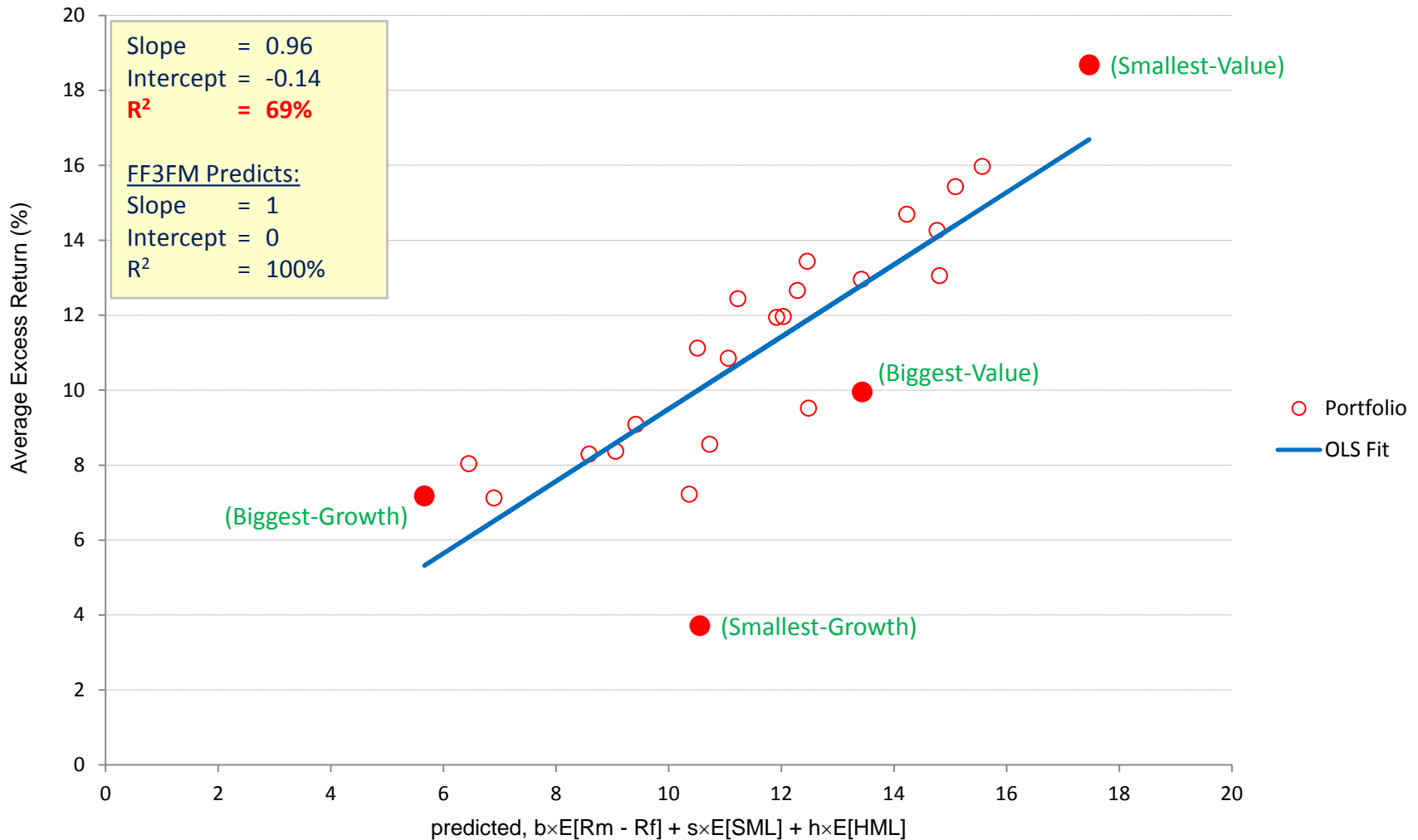


Annual Data, 1927 - 2008

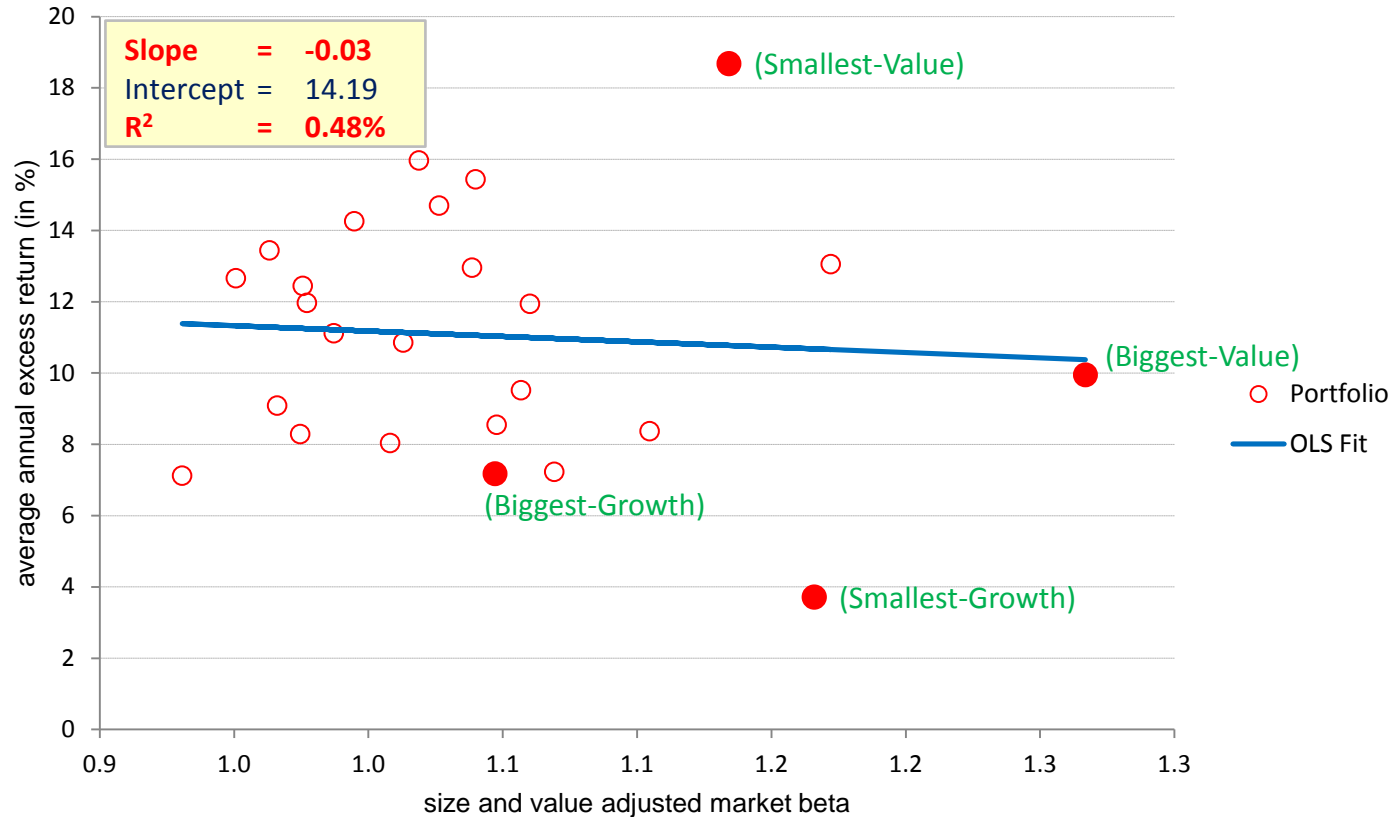
Failure of the CAPM



Success of the Fama-French 3-Factor Model



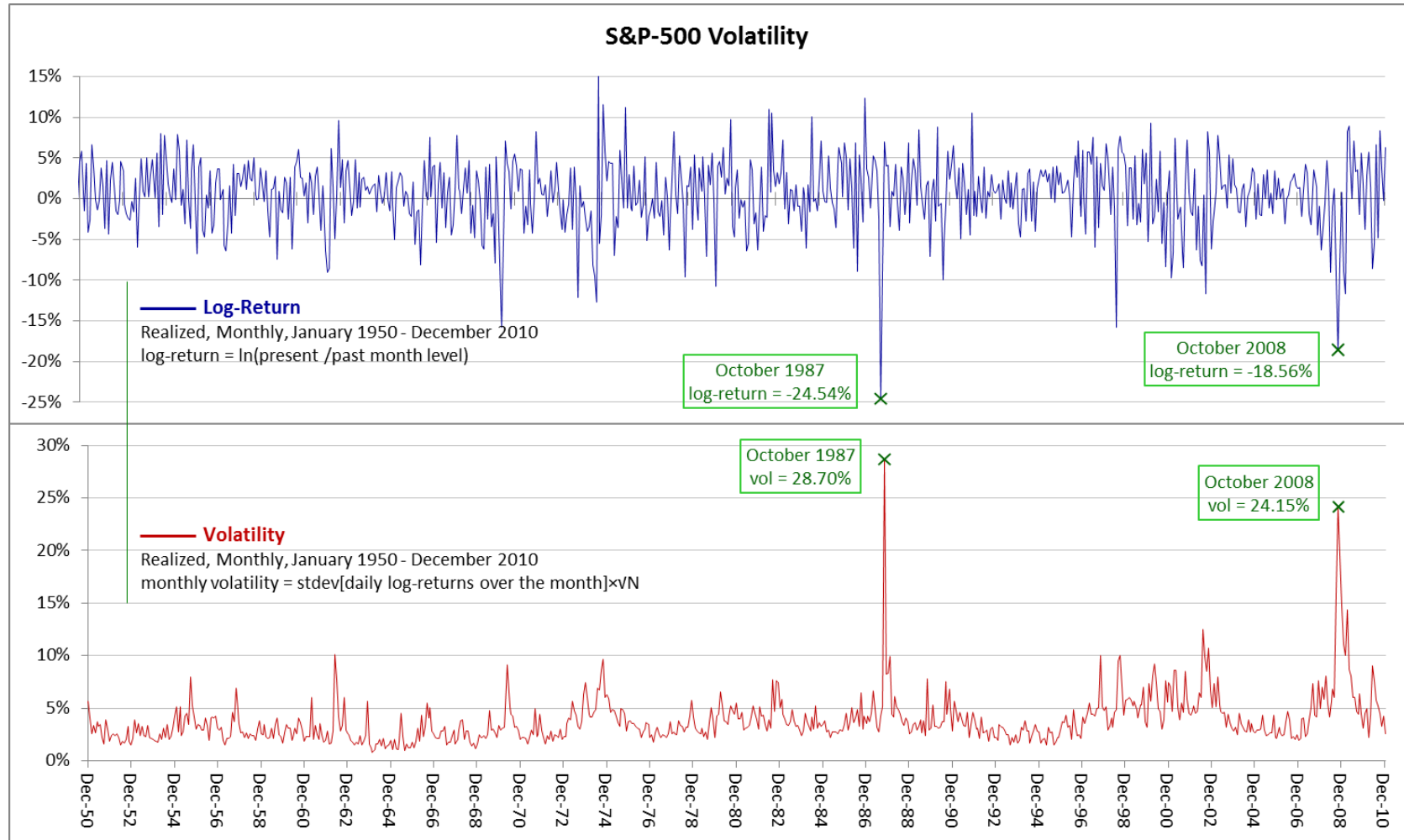
“BETA IS DEAD!”



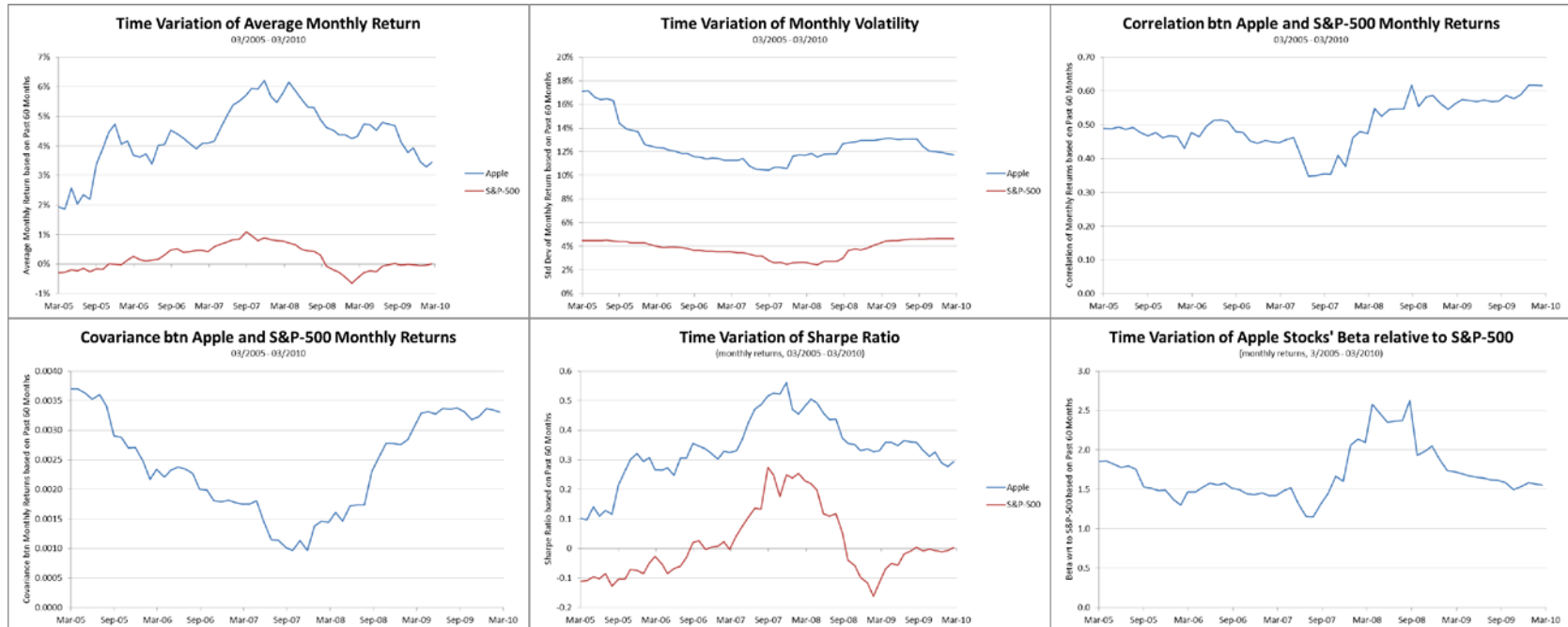
“Research using historic data indicates that cross-sectional differences in stock returns are related to three characteristics: market capitalization, market-to-book ratios, and momentum. Controlling for these factors, these studies find no relation between the CAPM beta and returns over the historical time periods studied.”

– Grinblatt and Titman, 2002.

Is Risk “CONSTANT” over Time? (Topic of FINC 970)



Everything is “TIME DEPENDENT”!



More Interestingly, It Turns out from Data that Investors Demand a Premium for Return Volatility. How do we think about “Risk of Risk”!!!

We need Dynamic Models – one of the Central Topic of FINC 970.

ADMINISTRATIVE DETAILS

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Hours: Walk-in (late afternoons) / e-mail for appointment

- Syllabus available in my Course Website at:
<http://www.kellogg.northwestern.edu/faculty/bandyopadhyay/courses>
- Quantitative Course – Prerequisites:
 - [FINC 460](#): Covariance Algebra, Basic Regression Analysis.
 - [FINC 970](#): Strong Preparation in Statistics, Regression Analysis, Comfortable w/ Algebra, Basic Calculus, EXCEL. (Meets Together w/ PhD FINC 530)
 - Welcome w/o Quant Prep, if You are Willing to Put-Up Extra Effort.
- What I Expect:
 - Finance / Non-Finance – Does Not Matter, **EVERYONE IS WELCOME!**
 - but, **MUST BE WILLING TO PUT-UP TIME TO LEARN HARD MATERIAL.**
- **PLEASE ASK QUESTIONS NOW!**